

REMARKS

The Office Action of November 29, 2006, was received and reviewed. The Examiner is thanked for considering the application. Reconsideration and withdrawal of the currently pending rejections are requested for the reasons advanced in detail below.

Prior to this Amendment, claims 1-16 were pending in the instant application. By this Amendment, claims 1-4 have been amended and claims 17-20 have been added. Accordingly, claims 1-20 are pending, of which claims 1-6 are independent.

Claims 1-12 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Hamada et al. (U.S. Patent No. 6,114,183 – hereafter Hamada) in view of Shoji et al. (Japanese Patent No. 10158638 – hereafter Shoji). Hamada in view of Shoji, however, fail to render the claimed invention unpatentable. Each of the claims recites a specific combination of features that distinguishes the invention from the prior art in different ways. For example, independent claims 1-4 recite a combination that includes, among other things:

wherein an acceleration voltage of electrons of the electron beam evaporation method is controlled to become the acceleration voltage by which the thin film transistor is not deteriorated with radial rays radiated from an evaporation material for forming the thin film when the evaporation material is irradiated with an electron beam,

(currently amended claims 1-4). Independent claim 5 recites a further combination that includes, for instance,

wherein a thickness of the thin film is 0.1 μm or less . . . wherein control is performed such that a time during which, the thin film transistor is exposed to radial rays radiated from an evaporation material for forming the thin film, is shortened to avoid deterioration of the thin film transistor when the evaporation material is irradiated with an electron beam,

(claim 5, ll. 6-9). And independent claim 6 recites a further combination that includes, for instance,

wherein a thickness of the second electrode is 0.1 μm or less . . . wherein control is performed such that a time during which, the thin film transistor is exposed to radial rays radiated from an evaporation material for forming the second electrode, is shortened to avoid deterioration of the thin film transistor when the evaporation material is irradiated with an electron beam,

(claim 6, ll. 7-11). At the very least, the applied references, whether taken alone or in

combination, fail to disclose or suggest any of these exemplary features recited in independent claims 1-6.

The Examiner has failed to establish a prima facie case of obviousness for at least four reasons. First, the Examiner has not demonstrated how Hamada in view of Shoji, whether taken alone or in combination, disclose or suggest each and every feature recited in the claims. See M.P.E.P. § 2143 (7th ed. 1998). Second, the Examiner has not shown the existence of any reasonable probability of success in modifying Hamada, the base reference, based on the teachings of Shoji, the secondary reference, in a manner that could somehow result in the claimed invention. See *id.* Third, the Examiner has not identified any suggestion or motivation, either in the teachings of the applied references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the apparatus of Hamada in a manner that could somehow result in the claimed invention. See *id.* Finally, the Examiner has not explained how his obviousness rationale could be found in the prior art — rather than being a hindsight reconstruction of Applicants' own disclosure. See *id.*

Each of the Examiner's factual conclusions must be supported by "substantial evidence" in the documentary record, as required by the Federal Circuit. See *In re Lee*, 61 U.S.P.Q.2d 1430, 1435 (Fed. Cir. 2002). The Examiner has the burden of documenting all findings of fact necessary to support a conclusion of anticipation or obviousness "less the 'haze of so-called expertise' acquire insulation from accountability." *Id.* To satisfy this burden, the Examiner must specifically identify where support is found within the prior art to meet the requirements of 35 U.S.C. §§ 102(b) and 103. In this case, however, the Examiner has failed to satisfy his burden of demonstrating how Hamada, taken alone or in combination with Shoji, can either anticipate or render obvious each and every one of the limitations present in independent claims 1-6, as required by the MPEP and Federal Circuit jurisprudence.

As discussed in Applicant's originally filed specification:

(an) abnormality in a threshold voltage and in sub-threshold characteristics is recognized . . . which is manufactured in the process of research and development . . . the cause of the abnormality, it has been found that a significant shift of a threshold voltage (V_{th}) is seen between the values before and after the formation of a metal film . . . with an electron beam evaporation method . . . (f)urther, it has been confirmed that a sub-threshold coefficient (S value) . . . is increased (deteriorated),

(specification at 2, lines 19-21). An advantage of Applicant's invention over the prior art includes, at least, controlling an acceleration voltage of electrons to become the acceleration voltage by which the thin film transistor is not deteriorated with radial rays radiated from an evaporation material as recited in independent claims 1-6.

Hamada discusses a display apparatus using electroluminescence (EL) elements including a light emitting layer for generating light. A high energy laser beam is irradiated on the luminous element layer to define a plurality of regions of the light emitting layer. The Examiner admits that Hamada fails to teach that the second electrode is formed using an electron beam evaporation method. Further, Shoji fails to disclose or suggest the method wherein an acceleration voltage of electrons of the electron beam evaporation method is controlled to become the acceleration voltage by which the thin film transistor is not deteriorated with radial rays radiated from an evaporation material for forming the thin film when the evaporation material is irradiated with an electron beam as recited in claims 1-6.

The Examiner attempts to remedy the deficiencies of Hamada by turning to Shoji. Shoji discusses a method of producing an EL device wherein the second electrode is formed over the organic EL layer using an electron beam vapor deposition method, wherein an acceleration voltage of electrons is controlled. However, Shoji teaches away from the claimed invention. Shoji discloses "the loss or reduction of the fluorescence of the organic light-emitting material contained in the organic substance layer . . . can be suppressed at the time of forming the cathode . . . by the electron beam vapor deposition method in which the acceleration voltage is controlled" (page 23, lines 2-9). Thus, Shoji discloses that the acceleration voltage is controlled so that radial rays are not substantially radiated from the vapor-depositing material in order to avoid the loss or reduction of the fluorescence. Applicant's invention, on the other hand, is not concerned with preventing radial rays from being radiated. In fact, the claims recite radial rays radiated from an evaporation material (e.g., see claims 1-6). The acceleration voltage is controlled so that the thin film transistor is not deteriorated with radial rays radiated from the evaporation material. Thus, Shoji lacks a teaching of radial rays as claimed and differs from the claimed invention, at least in controlling of an acceleration voltage for solving the problem as stated herein.

Regarding independent claims 5 and 6, these claims recite features including a combination that includes, for instance, a thickness of the thin film or second electrode being

0.1 μm or less, wherein control is performed such that a time during which, the thin film transistor is exposed to radial rays radiated from an evaporation material for forming the thin film or second electrode (e.g., see claim 5 and 6 above). Further discussion is provided in Applicant's specification, for example, at page 12, l. 21-page 13, l. 1. Hence, the present invention discloses that a time, during which the thin film transistor is exposed to radial rays, is controlled to be shortened, and the shortened time can be obtained by a reduction in thickness of the thin film or second electrode. On the other hand, Shoji discloses "a radial ray is **not** (emphasis added) substantially radiated from the evaporation material" and fails to disclose that the time is shortened for electron beam evaporation as recited in claims 5 and 6.

Furthermore the Examiner admits that Shoji does not explicitly teach that control is performed such that a time during which the TFT is exposed to radial rays is shortened to avoid deterioration of the TFT when the evaporation material is irradiated with an electron beam. However, the Examiner asserts that "Shoji teaches that the acceleration voltage directly affects the film-forming speed, which inversely affects deposition time. The Examiner further contends that as the acceleration voltage increases, the deposition rate increases while the deposition time decreases. Finally, the Examiner concludes that because the acceleration voltage is controlled, the film-forming speed and deposition time is indirectly controlled. This, however, teaches away from the claimed invention since the present invention is not concerned with increasing the deposition rate as discussed by the Examiner. Instead, Applicant's invention is directed toward reducing thickness of a thin film or second electrode as recited in claims 5 and 6.

In accordance with the M.P.E.P. § 2143.03, to establish a prima facie case of obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. In re Royka, 409 F.2d 981, 180 USPQ 580 (CCPA 1974). "All words in a claim must be considered in judging the patentability of that claim against the prior art." In re Wilson, 424 F.2d 1382, 1385, 165 USPQ 196 (CCPA 1970). Therefore, it is respectfully submitted that neither Hamada nor Shoji, taken alone or in any proper combination, discloses or suggests the subject matter as recited in claims 1-6. Hence, withdrawal of the rejection is respectfully requested.

Claims 7 and 13 depend from independent claim 1 and are patentable over the cited prior art for at least the same reasons as set forth above with respect to claim 1.

Claims 8 and 14 depend from independent claim 2 and are patentable over the cited prior art for at least the same reasons as set forth above with respect to claim 2.

Claims 9 and 15 depend from independent claim 3 and are patentable over the cited prior art for at least the same reasons as set forth above with respect to claim 3.

Claims 10 and 16 depend from independent claim 4 and are patentable over the cited prior art for at least the same reasons as set forth above with respect to claim 4.

Claims 11, 17, and 19 depend from independent claim 5 and are patentable over the cited prior art for at least the same reasons as set forth above with respect to claim 5.

Claims 12, 18, and 20 depend from independent claim 6 and are patentable over the cited prior art for at least the same reasons as set forth above with respect to claim 6.

In addition, each of these dependent claims also recite combinations that are separately patentable.

In view of the foregoing remarks, this claimed invention, as amended, is not rendered obvious in view of the prior art references cited against this application. Applicant therefore request the entry of this response, the Examiner's reconsideration and reexamination of the application, and the timely allowance of the pending claims.

The Office Action contains characterizations of the claims and the related art with which Applicant does not necessarily agree. Unless expressly noted otherwise, Applicant declines to subscribe to any statement or characterization in the Office Action.

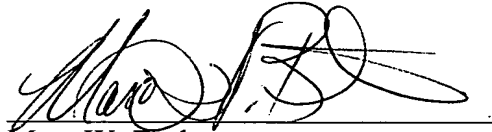
In discussing the specification, claims, and drawings in this response, it is to be understood that Applicant in no way intends to limit the scope of the claims to any exemplary embodiments described in the specification and/or shown in the drawings. Rather, Applicant is entitled to have the claims interpreted broadly, to the maximum extent permitted by statute, regulation, and applicable case law.

Should the Examiner believe that a telephone conference would expedite issuance of the application, the Examiner is respectfully invited to telephone the undersigned patent agent at (202) 585-8316.

Respectfully submitted,

Dated: February 28, 2007

By:

A handwritten signature in black ink, appearing to read 'Marc W. Butler', is written over a horizontal line.

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